

Kansas Department of Education

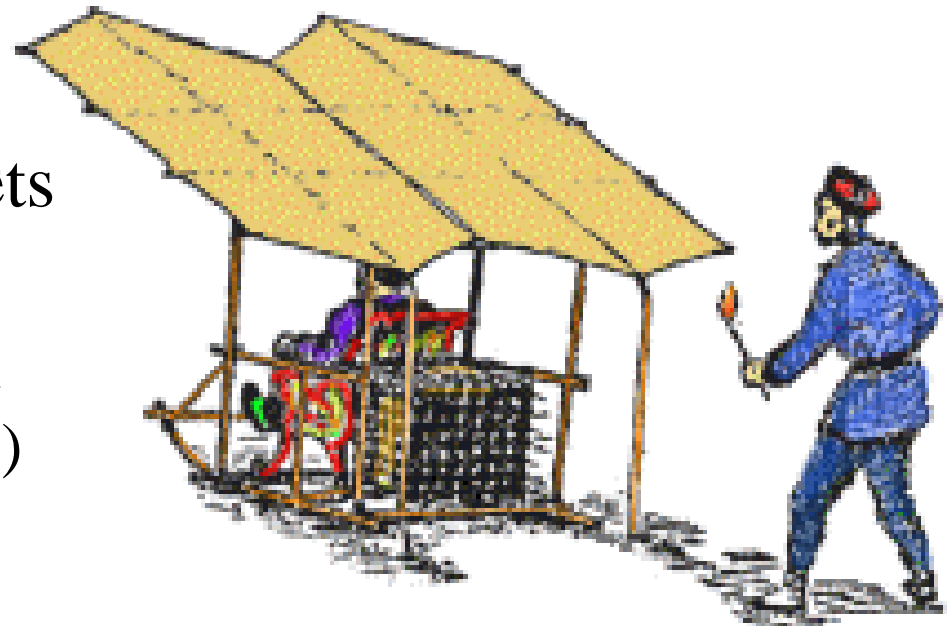
- Steam propulsion was known in Greece before 400 BC
- Hero engine in 100 BC

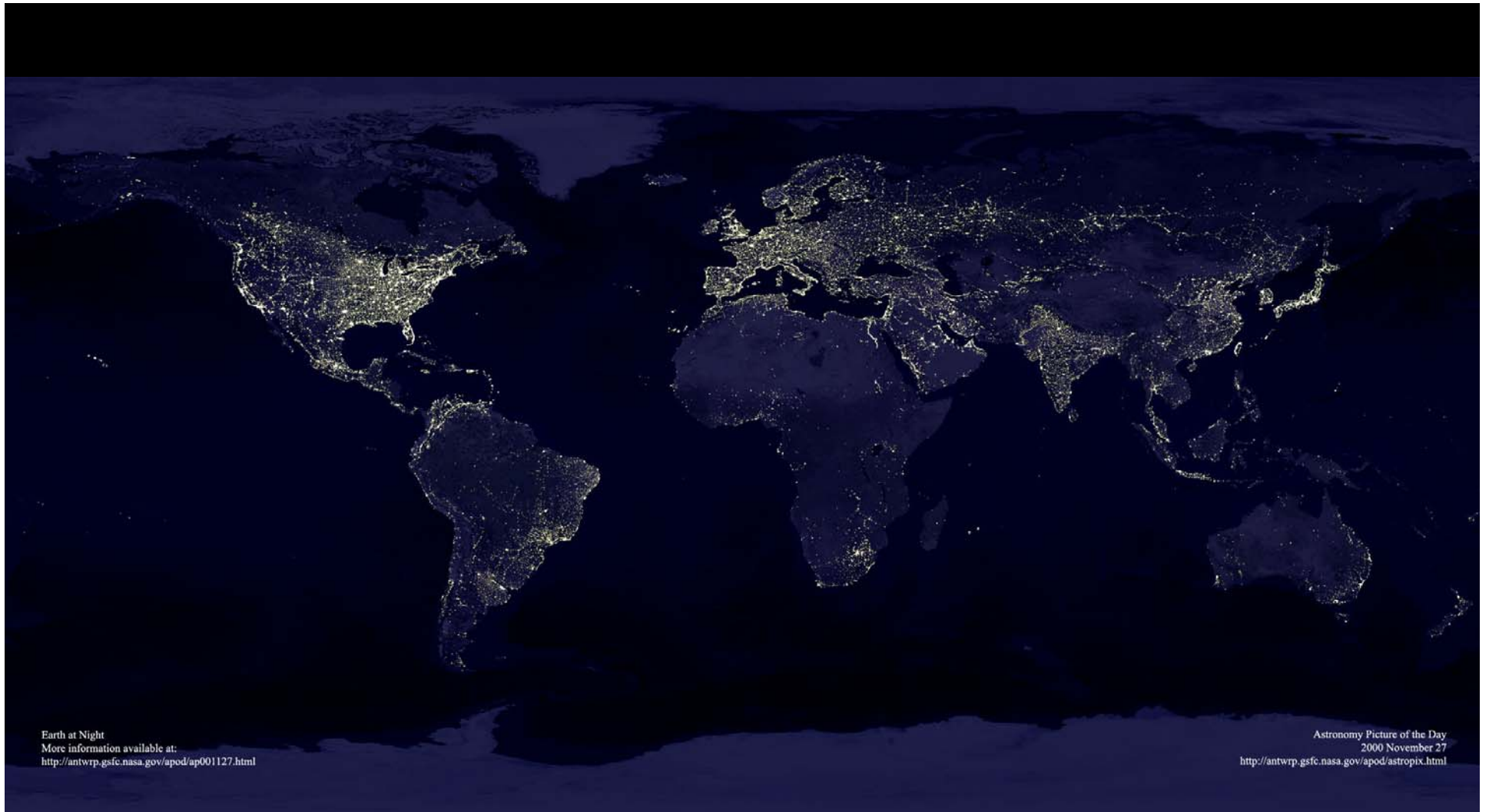




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- True rockets have internally stored propellants and energy
- Chinese started with true gunpowder rockets in 13th Century
 - Wan Hu tried manned flight (Unsuccessfully)



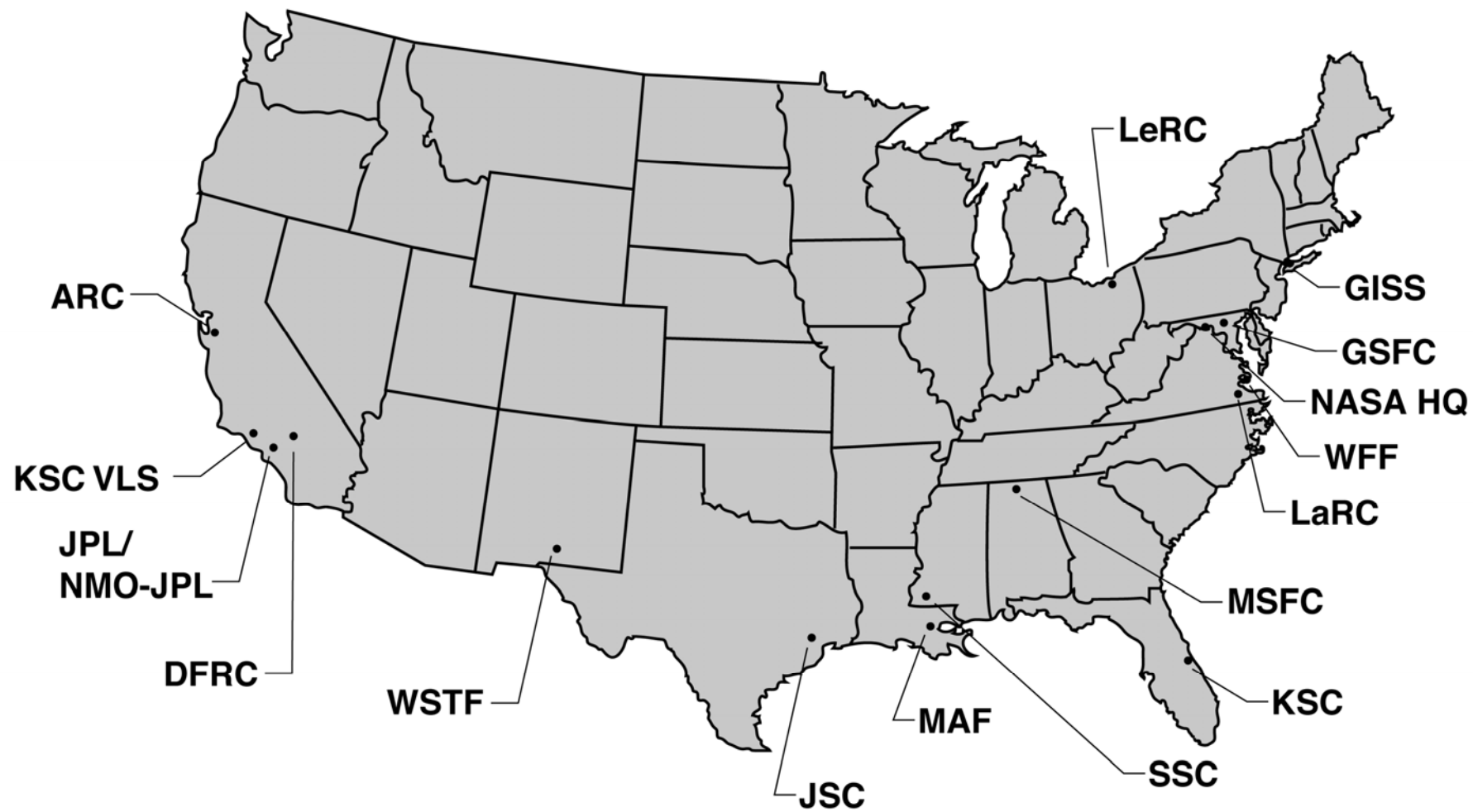


Earth at Night
More information available at:
<http://antwrp.gsfc.nasa.gov/apod/ap001127.html>

Astronomy Picture of the Day
2000 November 27
<http://antwrp.gsfc.nasa.gov/apod/astropix.html>

“The Earth is the cradle of mankind, but one cannot live in the cradle forever.”

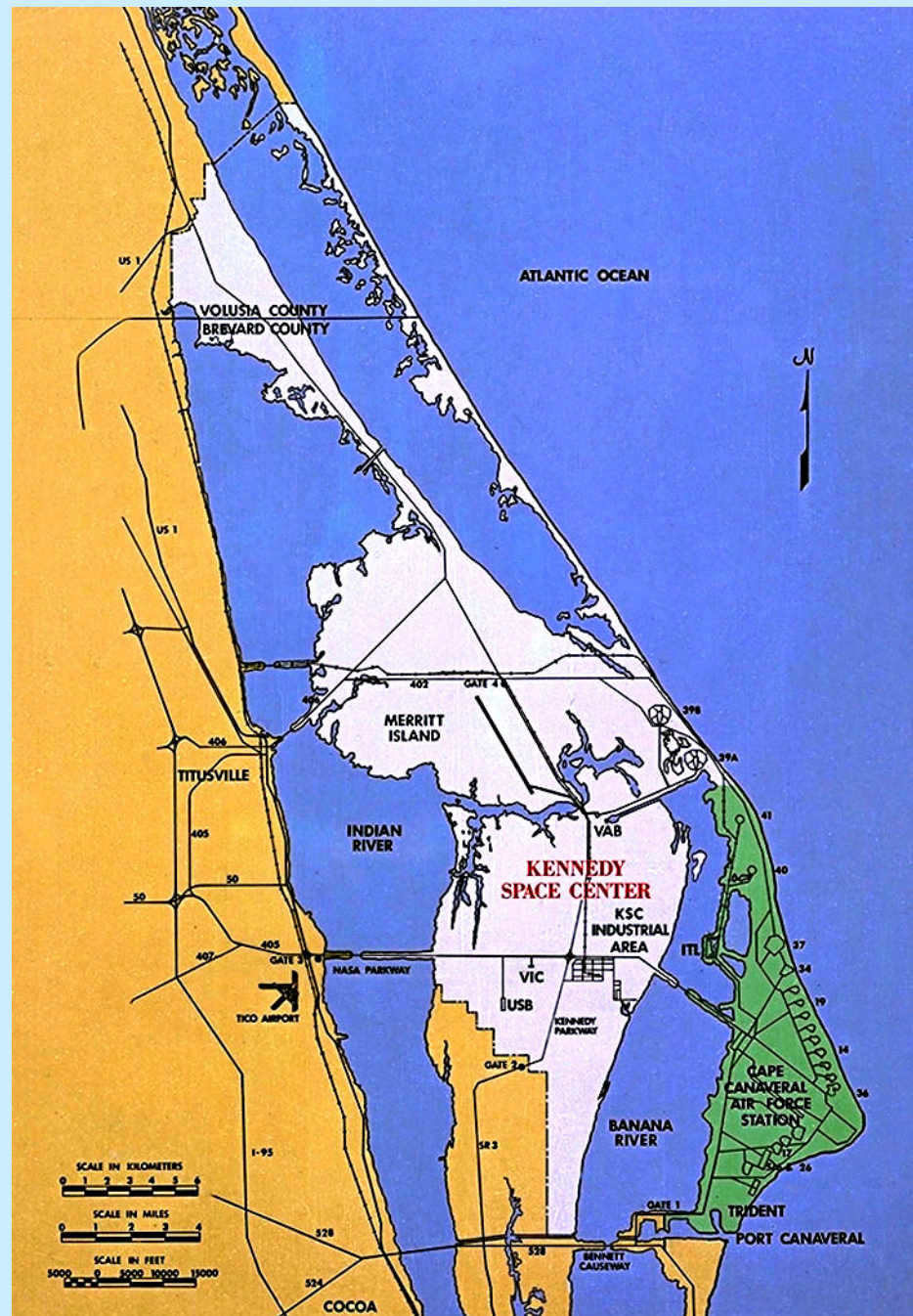
Konstantin Tsiolkovsky





Kennedy Space Center





A Wildlife Refuge



Rocket





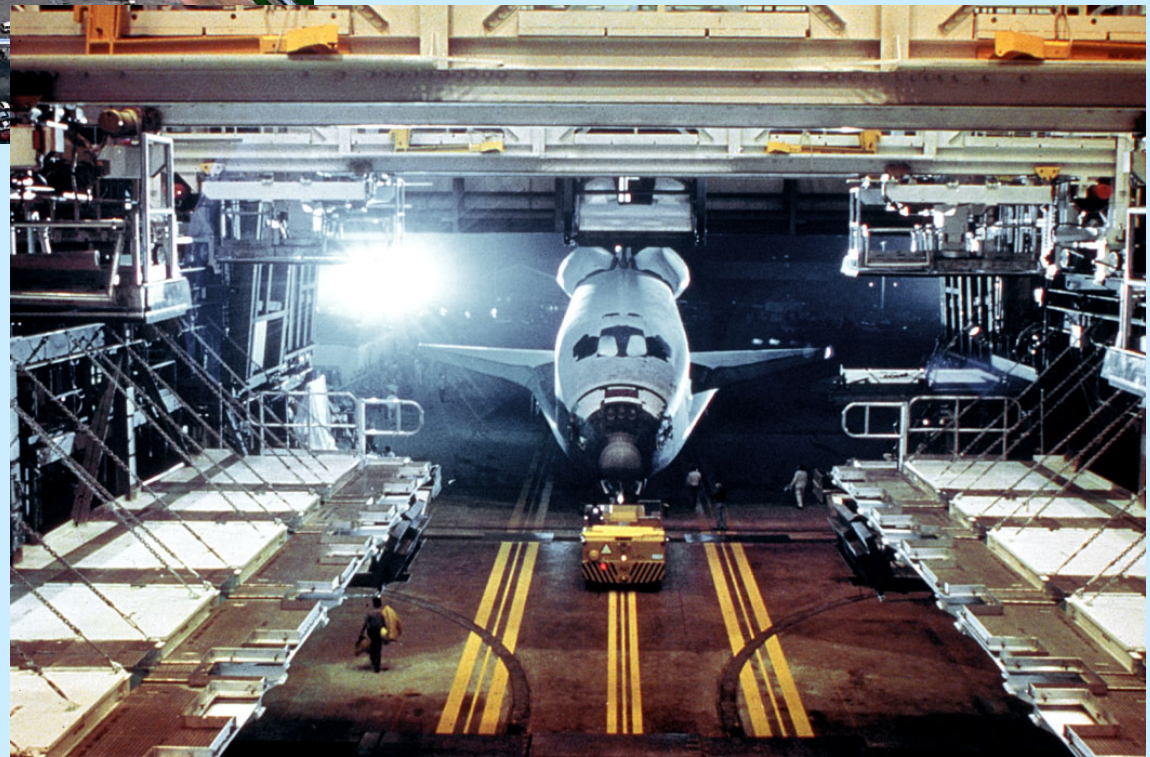


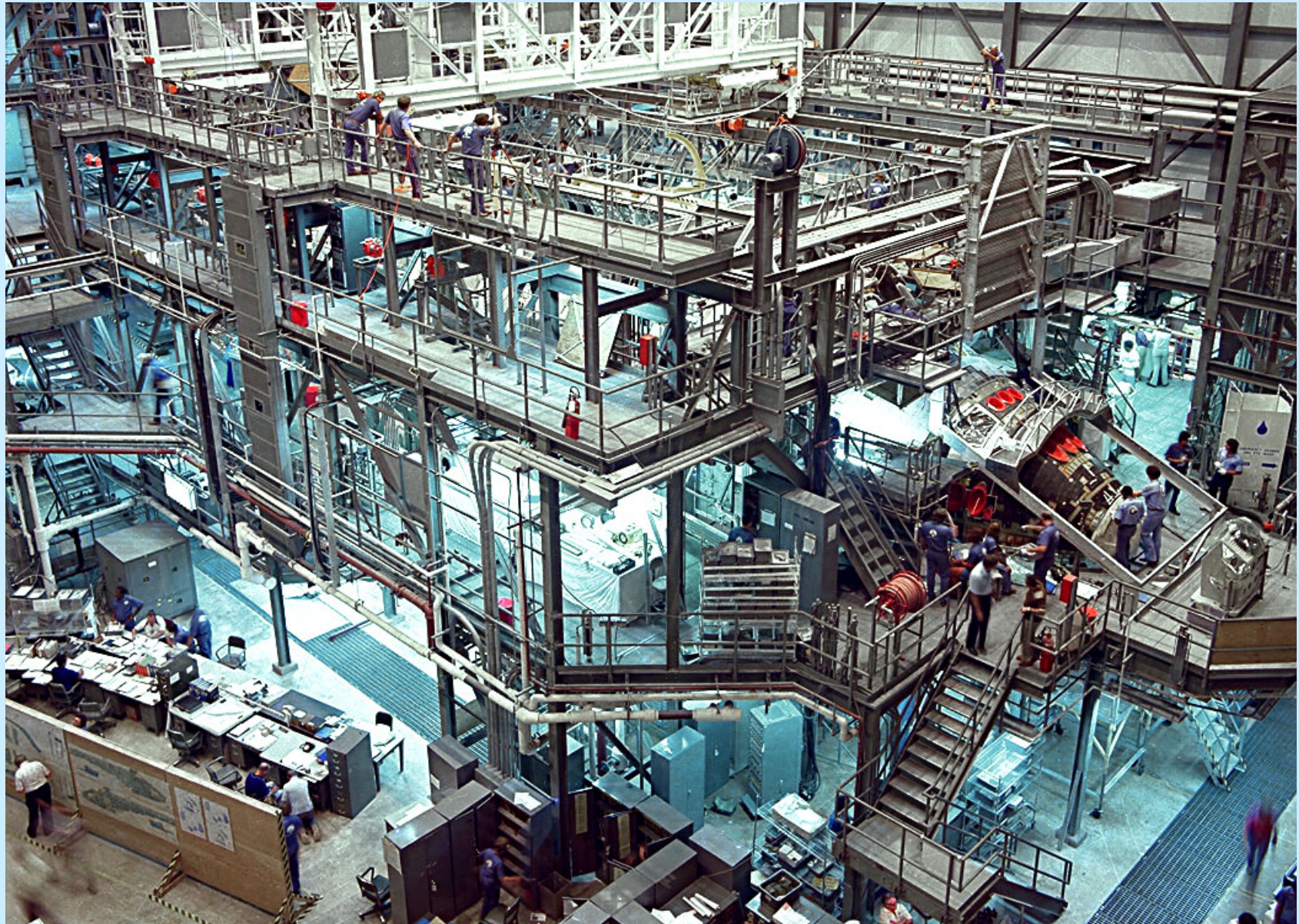


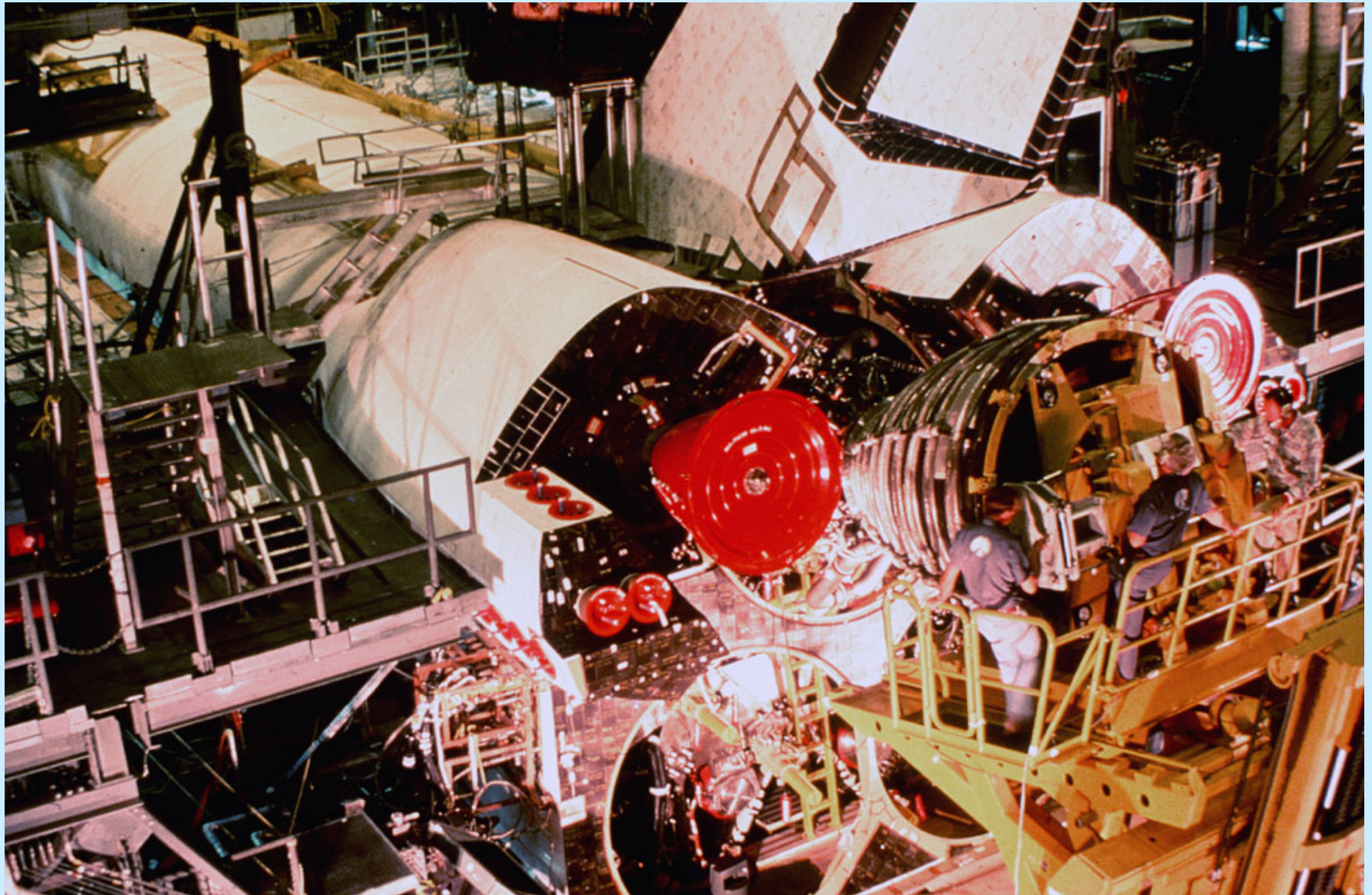




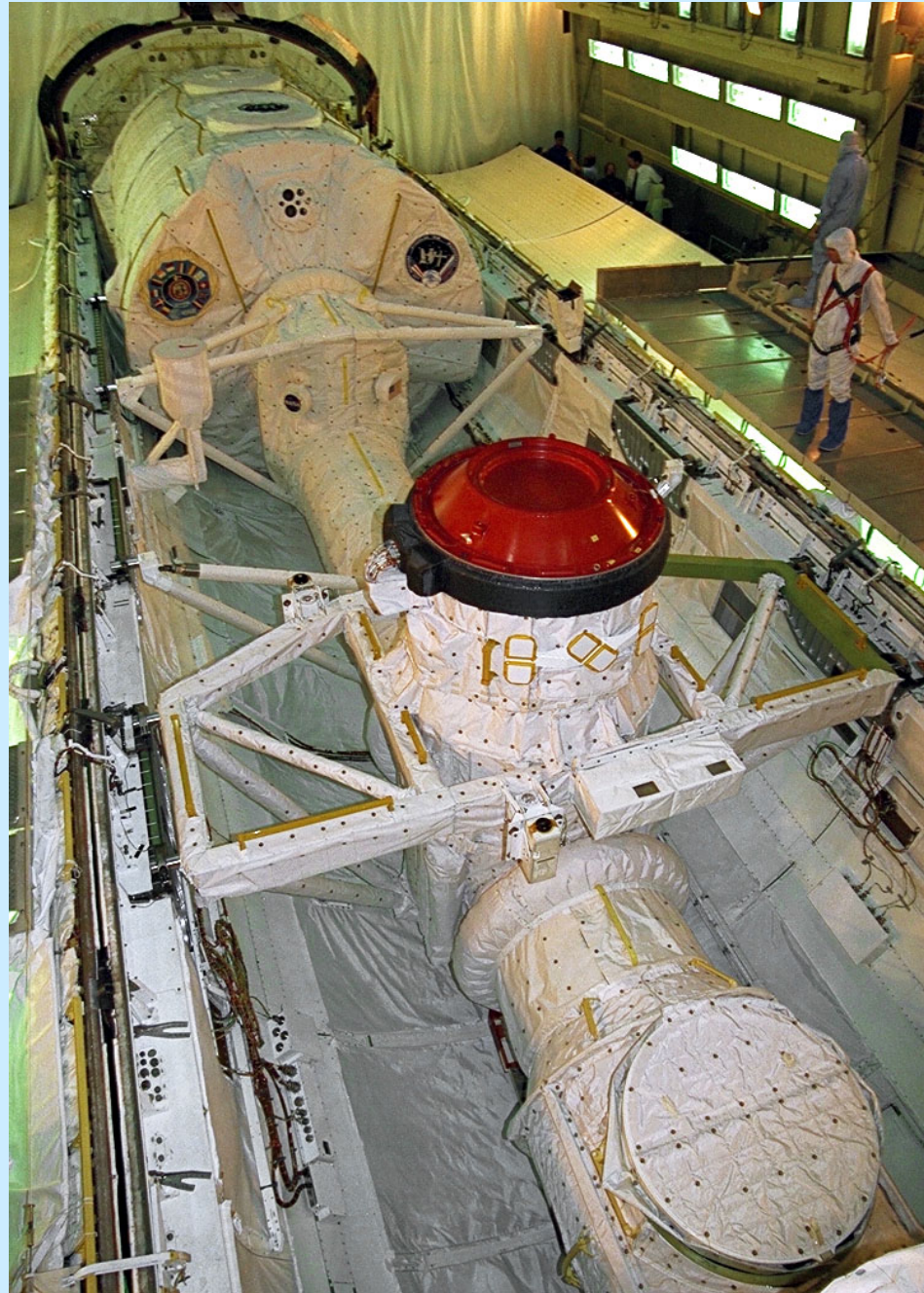




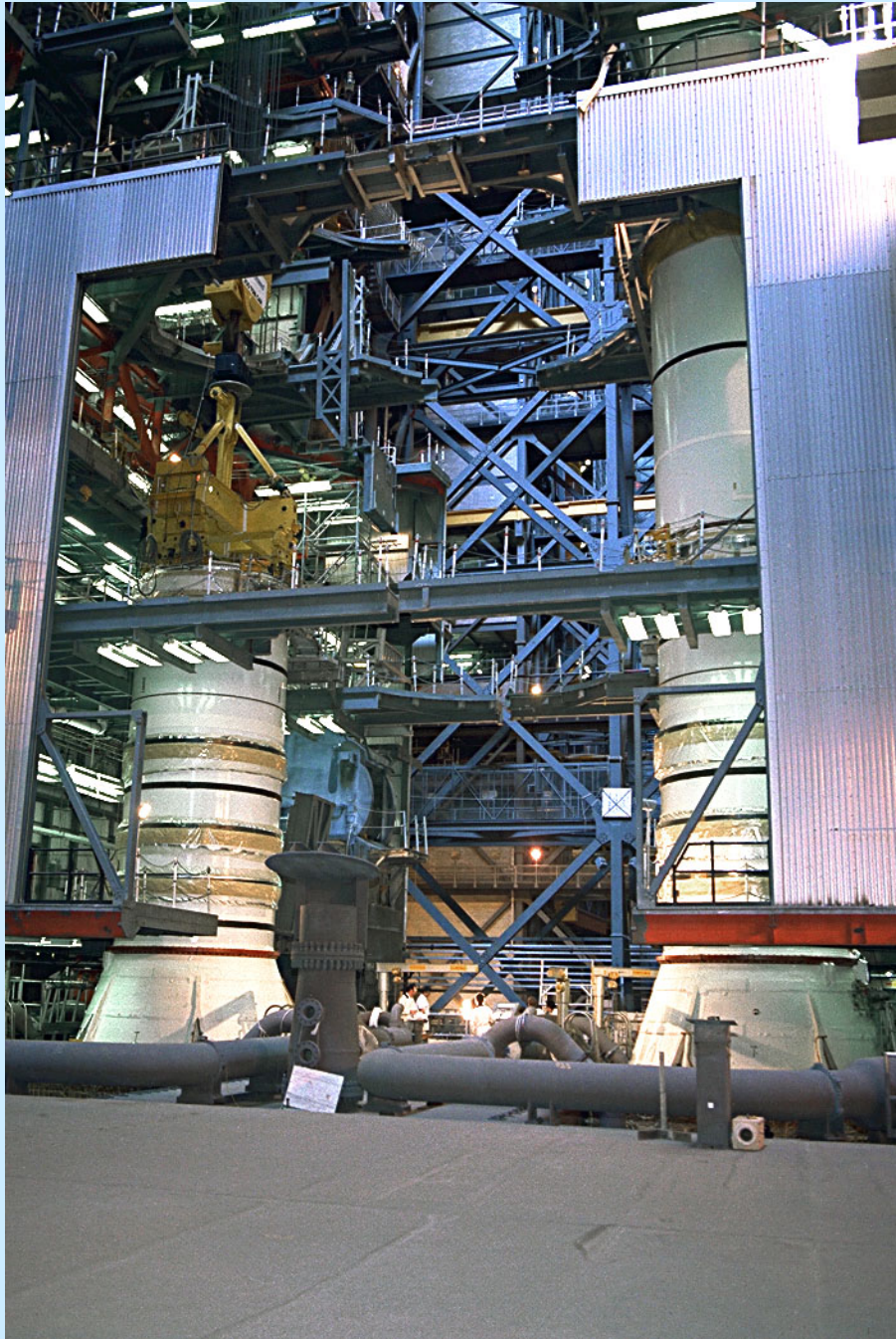


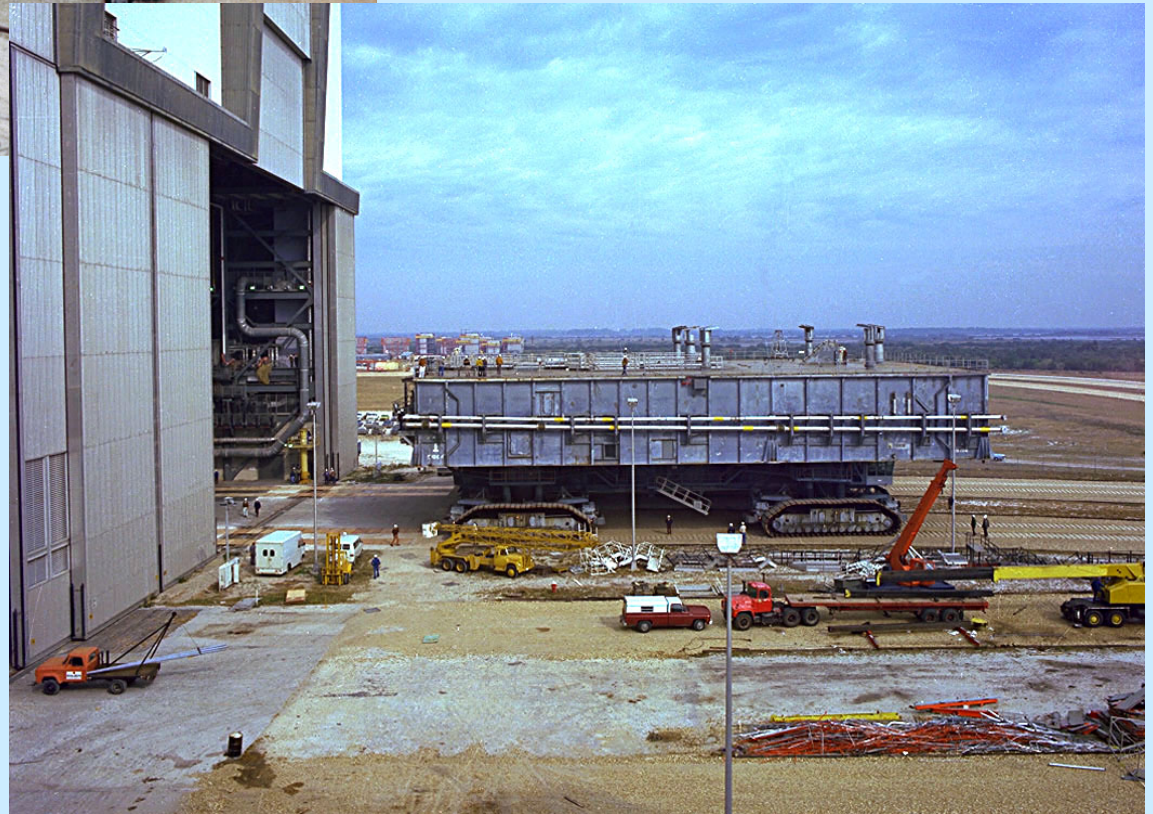
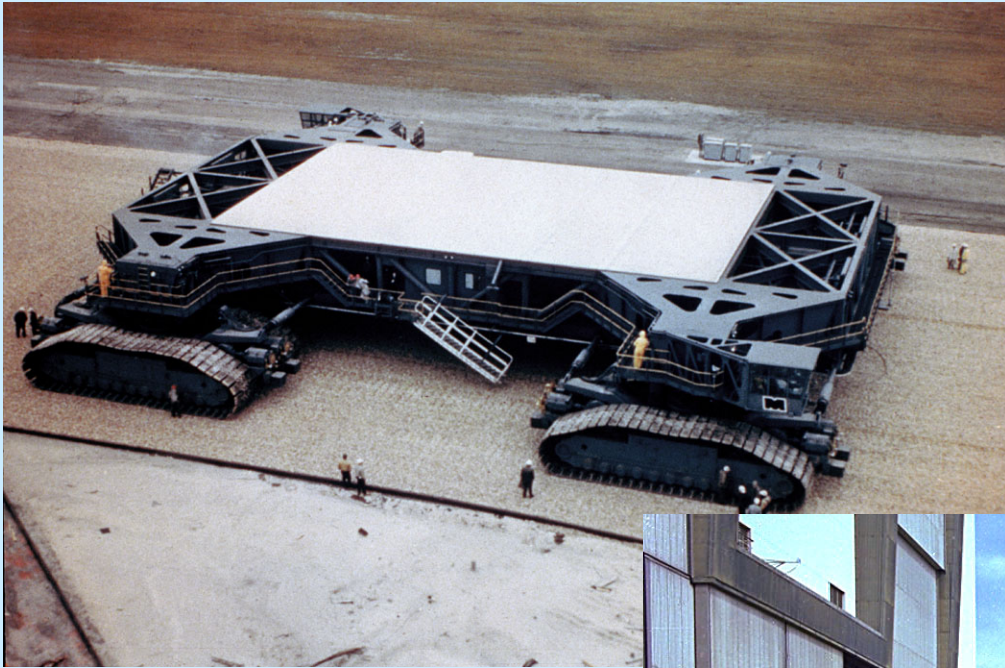


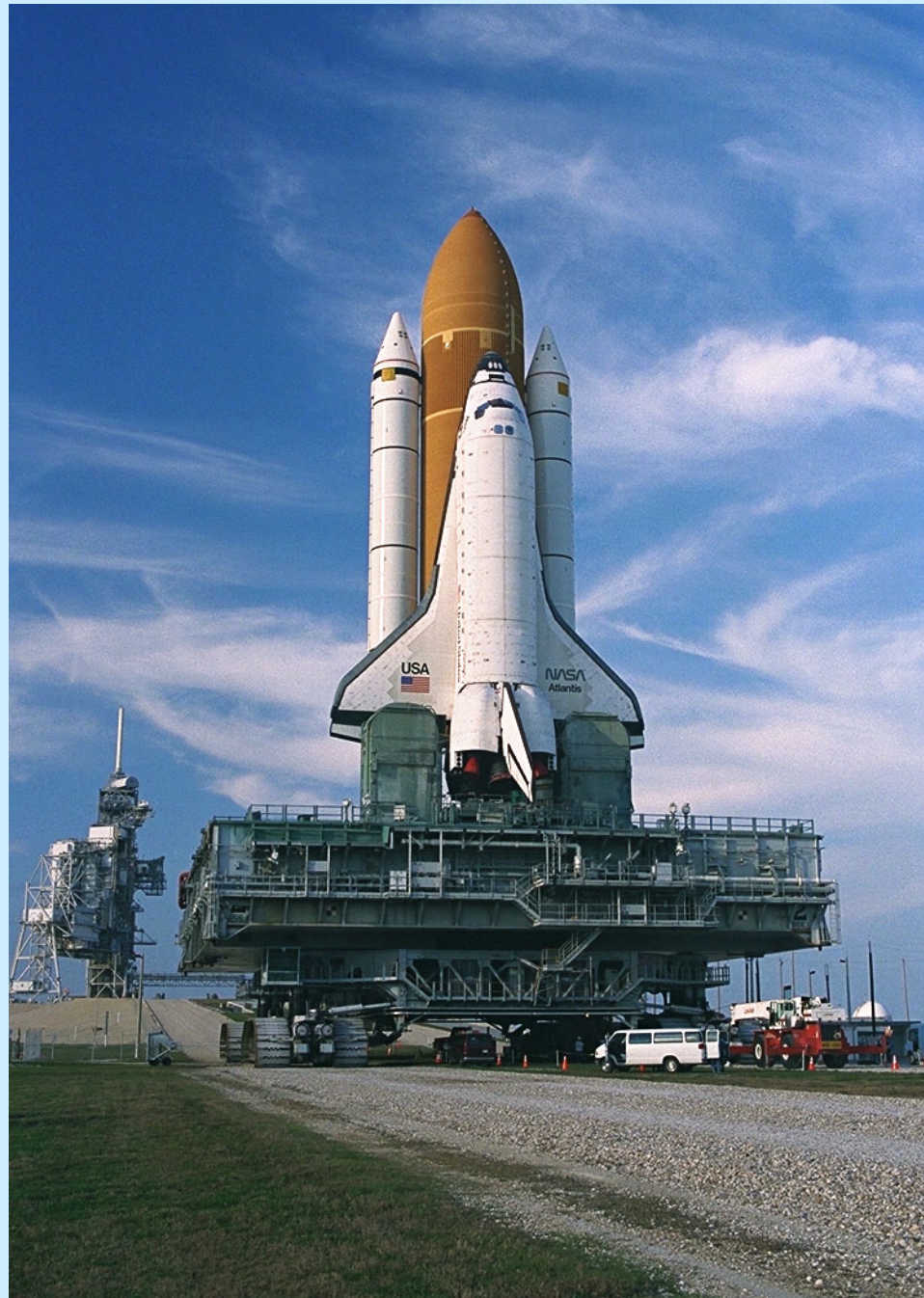


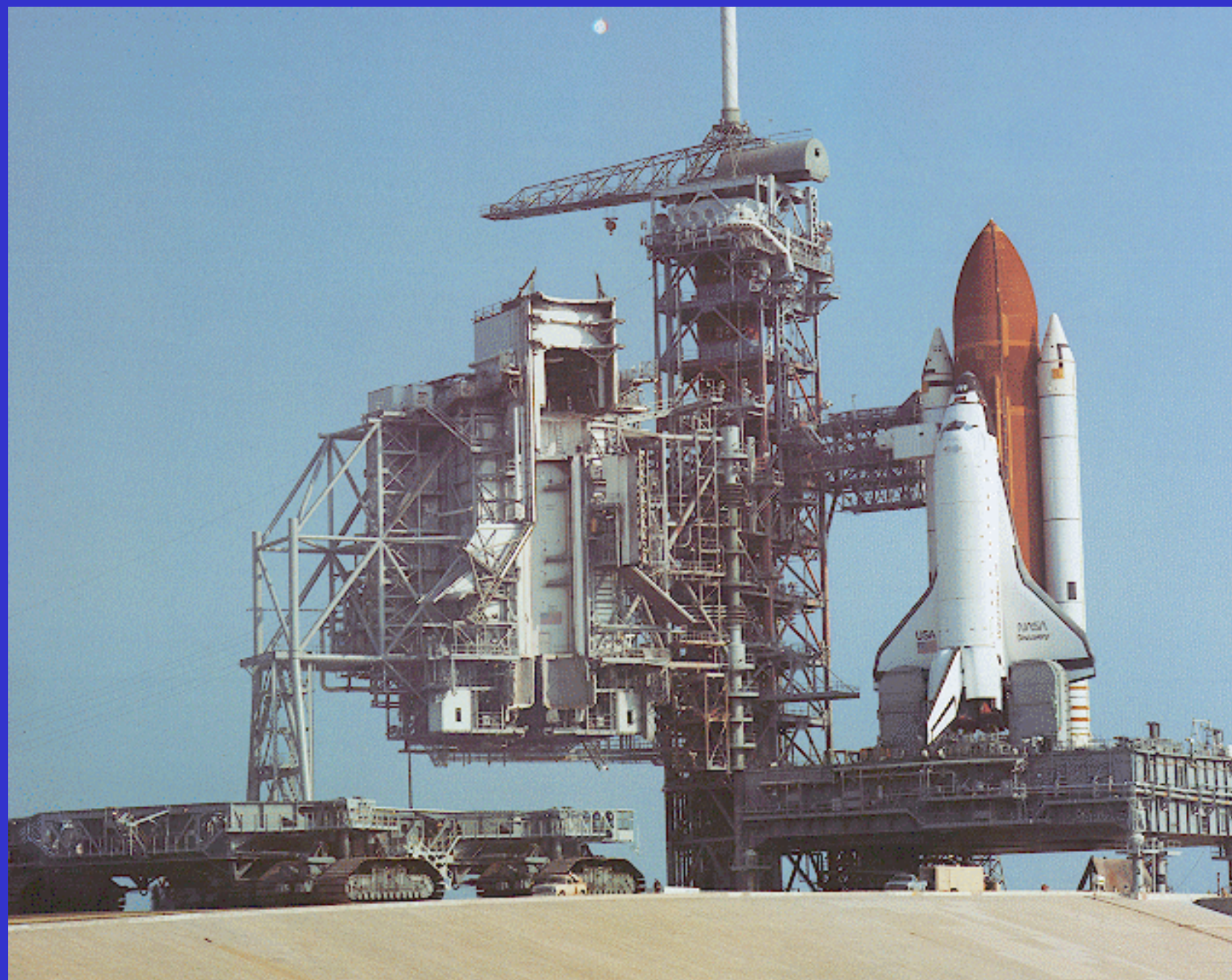


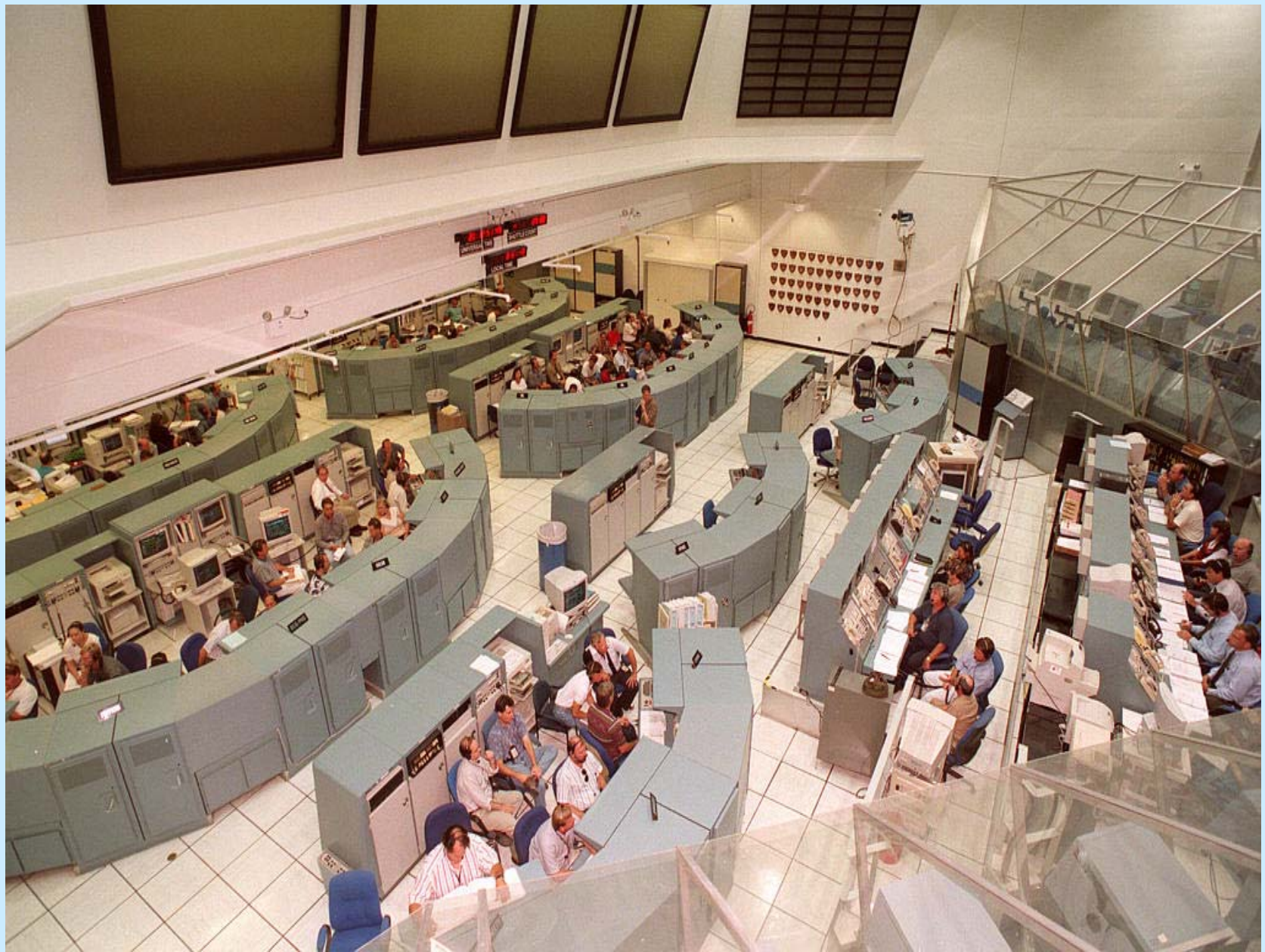










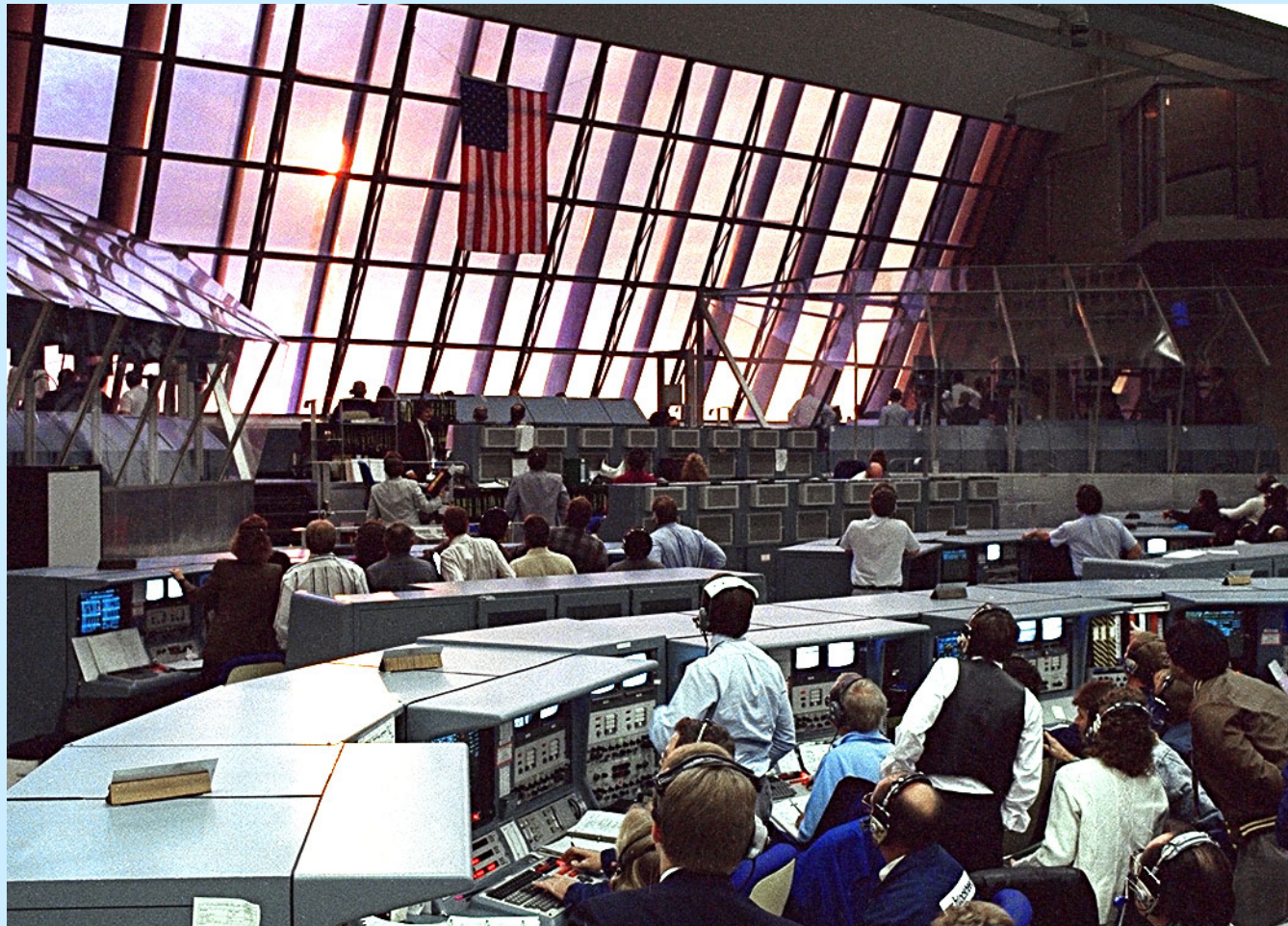












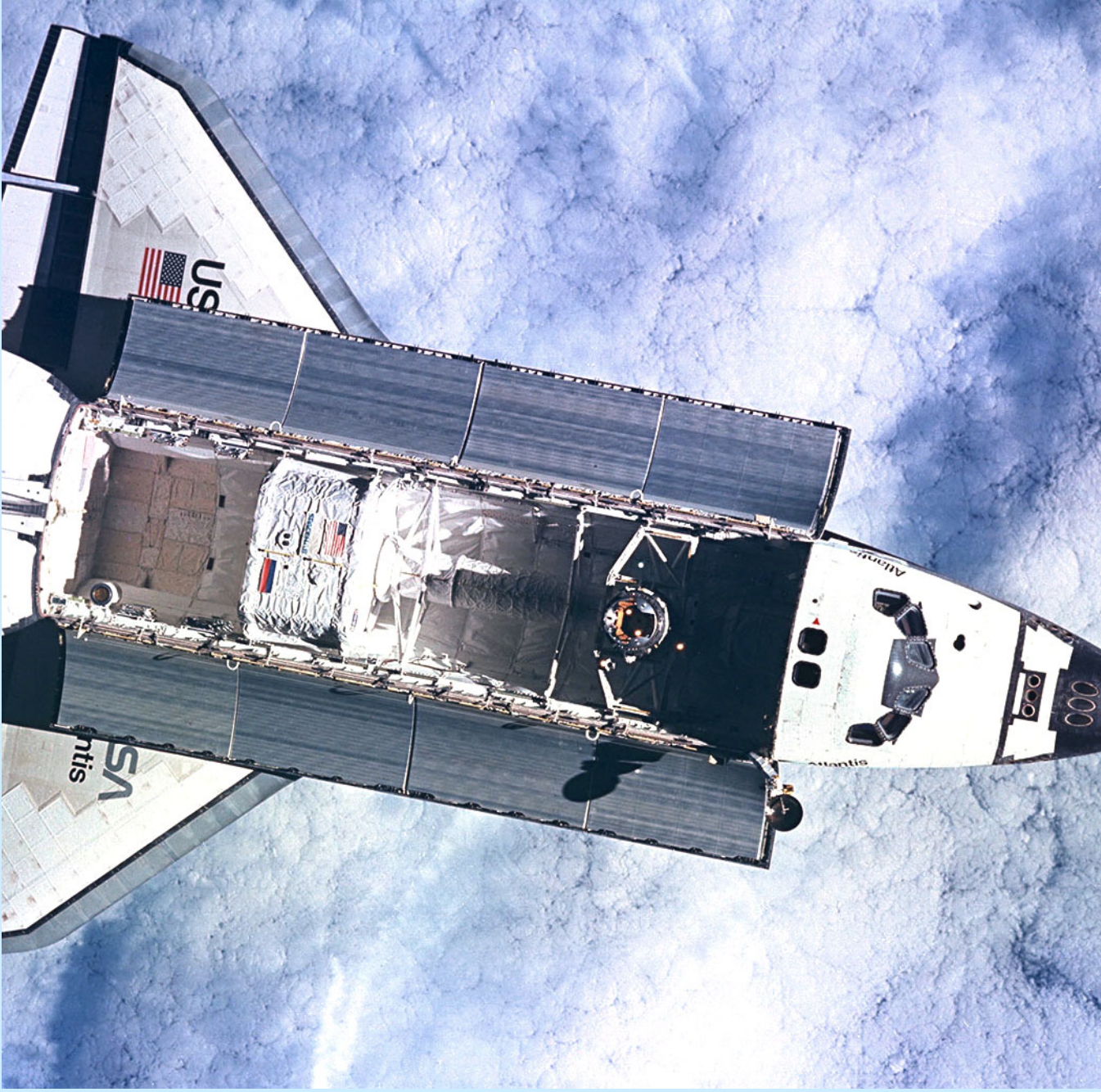












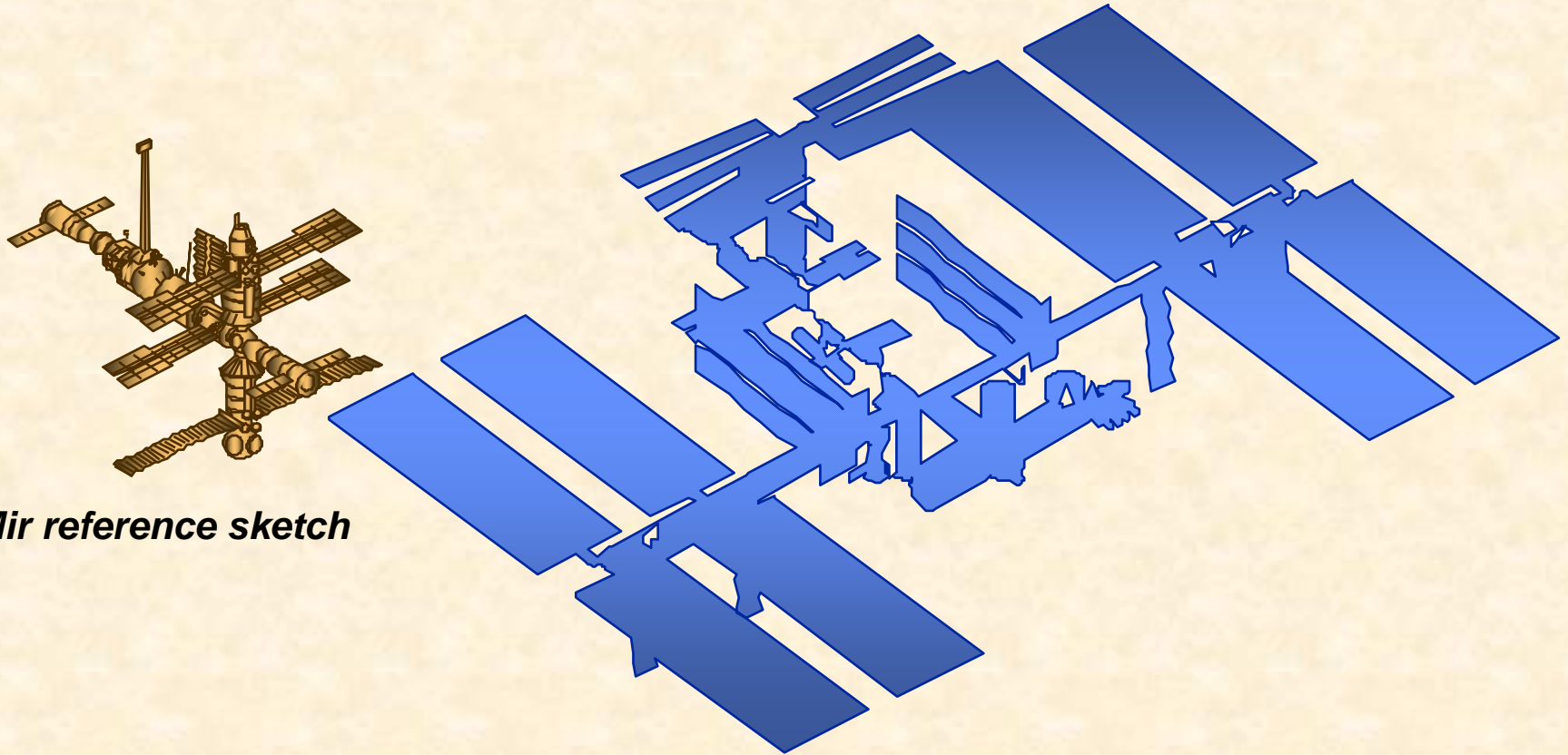




The International Space Station



Size Comparison of Mir and International Space Station



Mir reference sketch

	<u>Length</u>	<u>Width</u>	<u>Height</u>	<u>Weight</u>
<i>Mir</i>	108 ft	98 ft	89 ft	90 metric tons
ISS	290 ft	358 ft	131 ft	406 metric tons



Belgium



Brazil



France



Spain



The Netherlands



Germany



Sweden



Canada



Norway



Italy



Russia



United Kingdom



United States



Japan



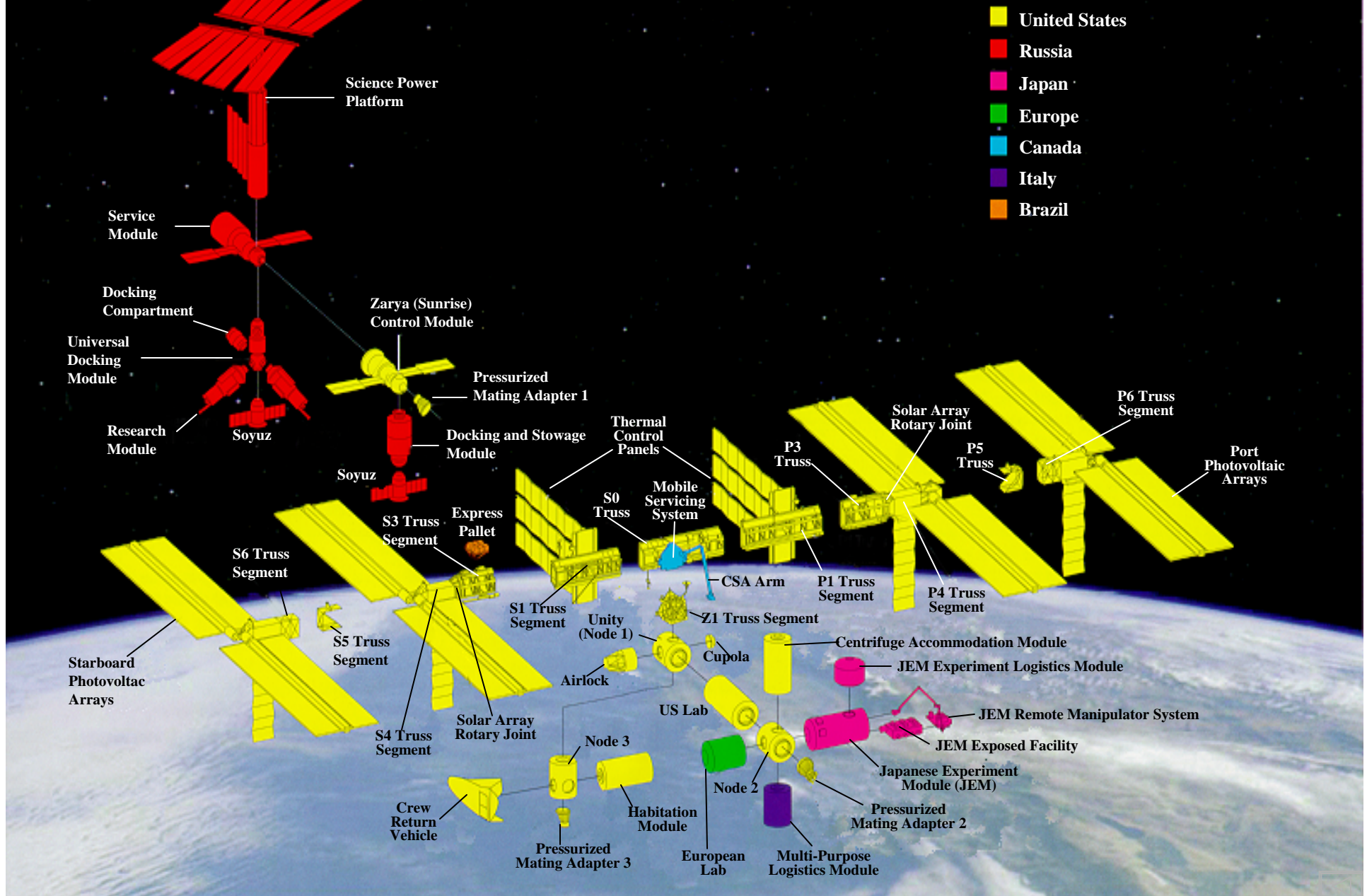
Denmark



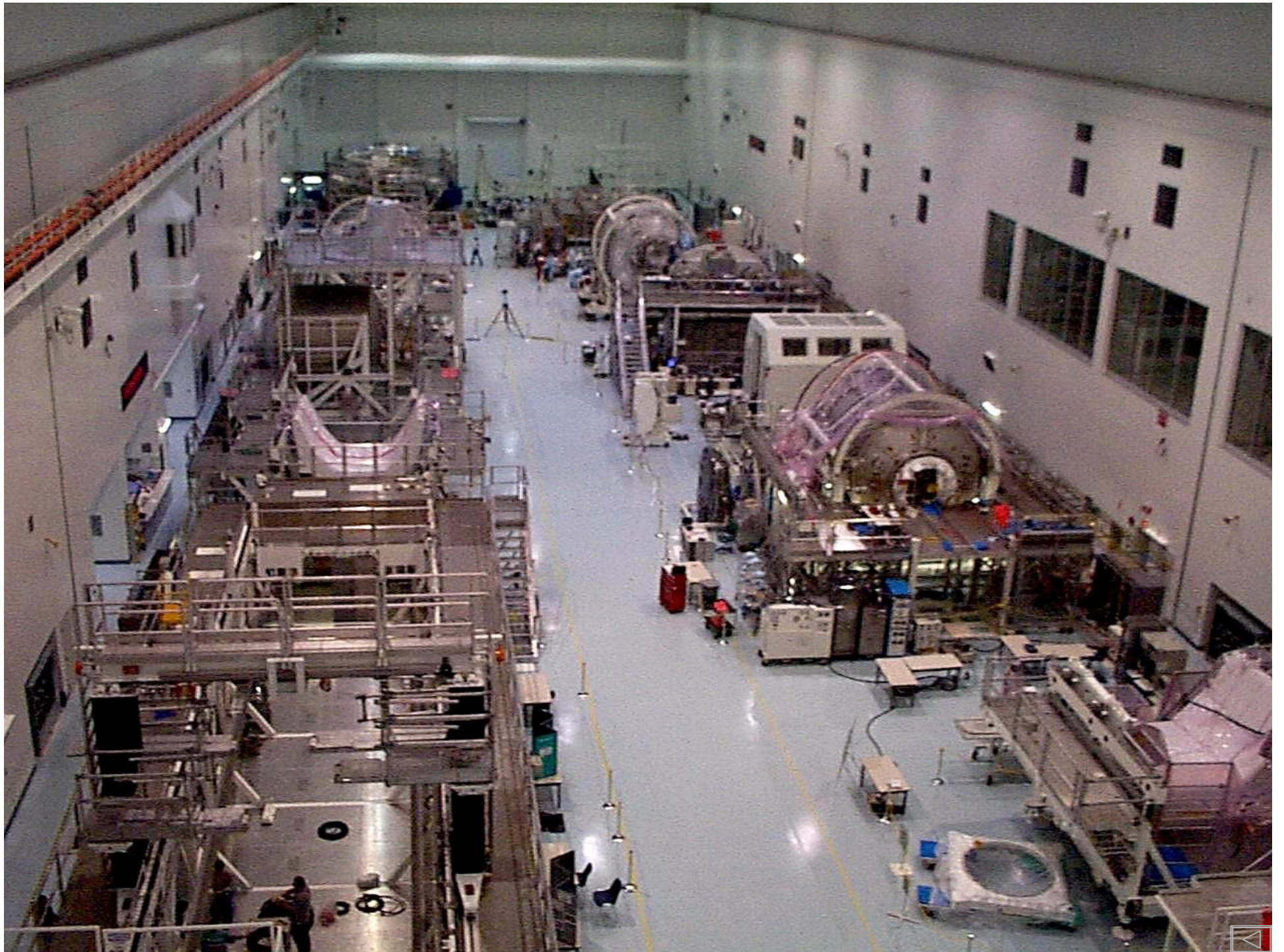
Switzerland



International Space Station







Space Station Mobile Servicing System

Mobil Transporter
8A Mission

Mobil Base
System
UF-2 Mission

Arm
Remote
Manipulator
System
6A Mission

CSA

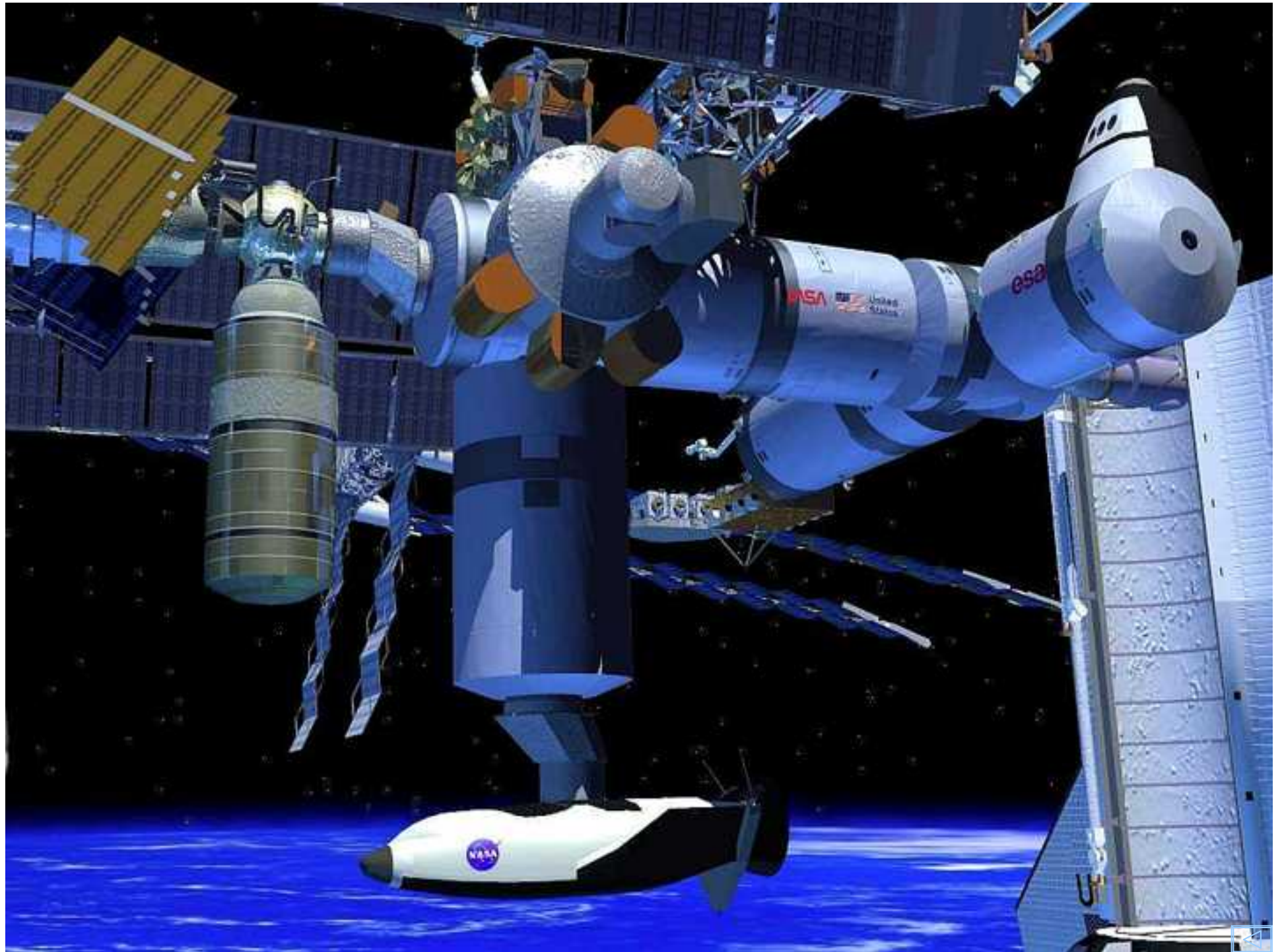
SPAR

Special
Purpose
Dexterous
Manipulator
UF-4 Mission

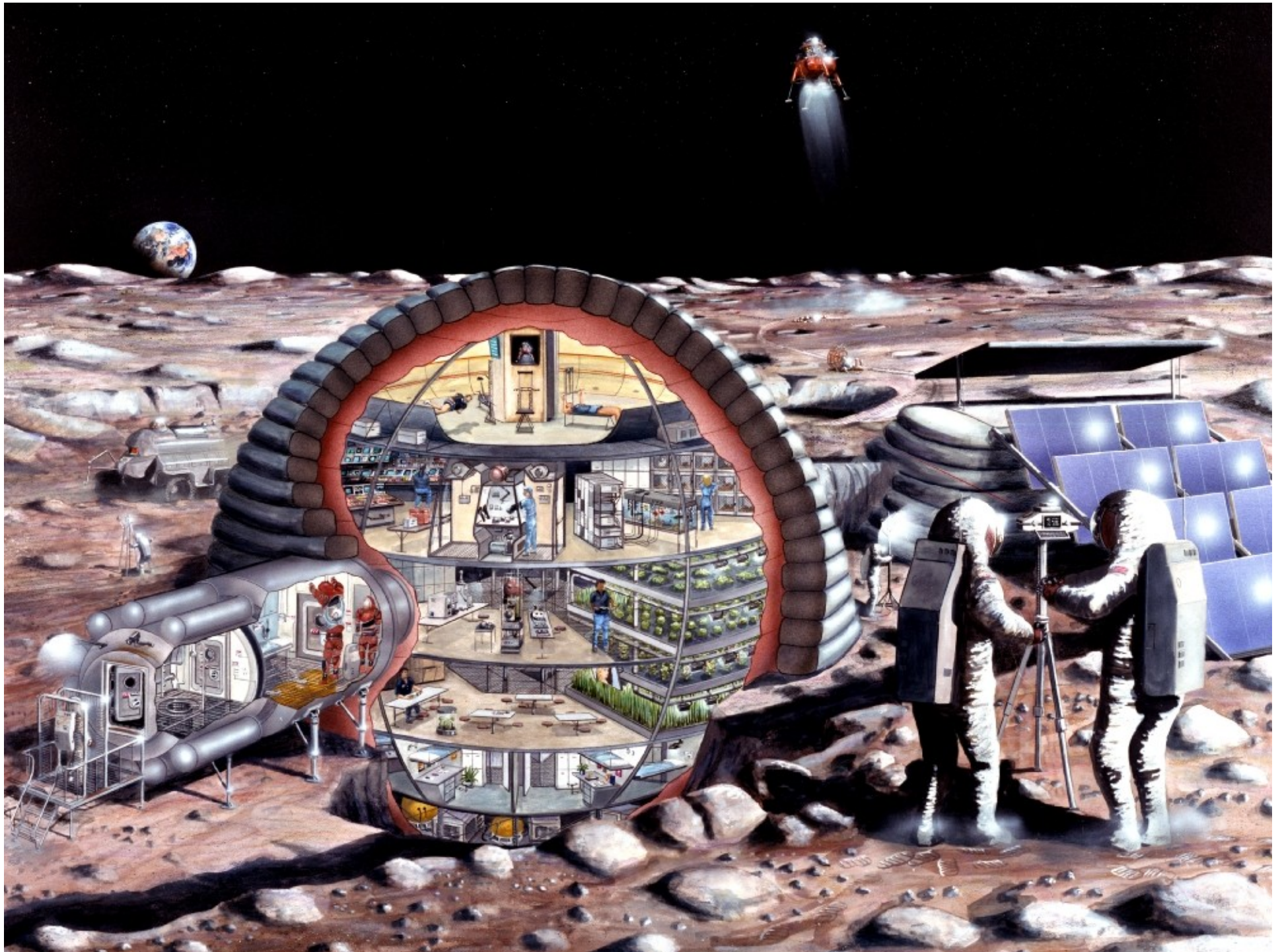
Canadian technology...

it's out of this world.

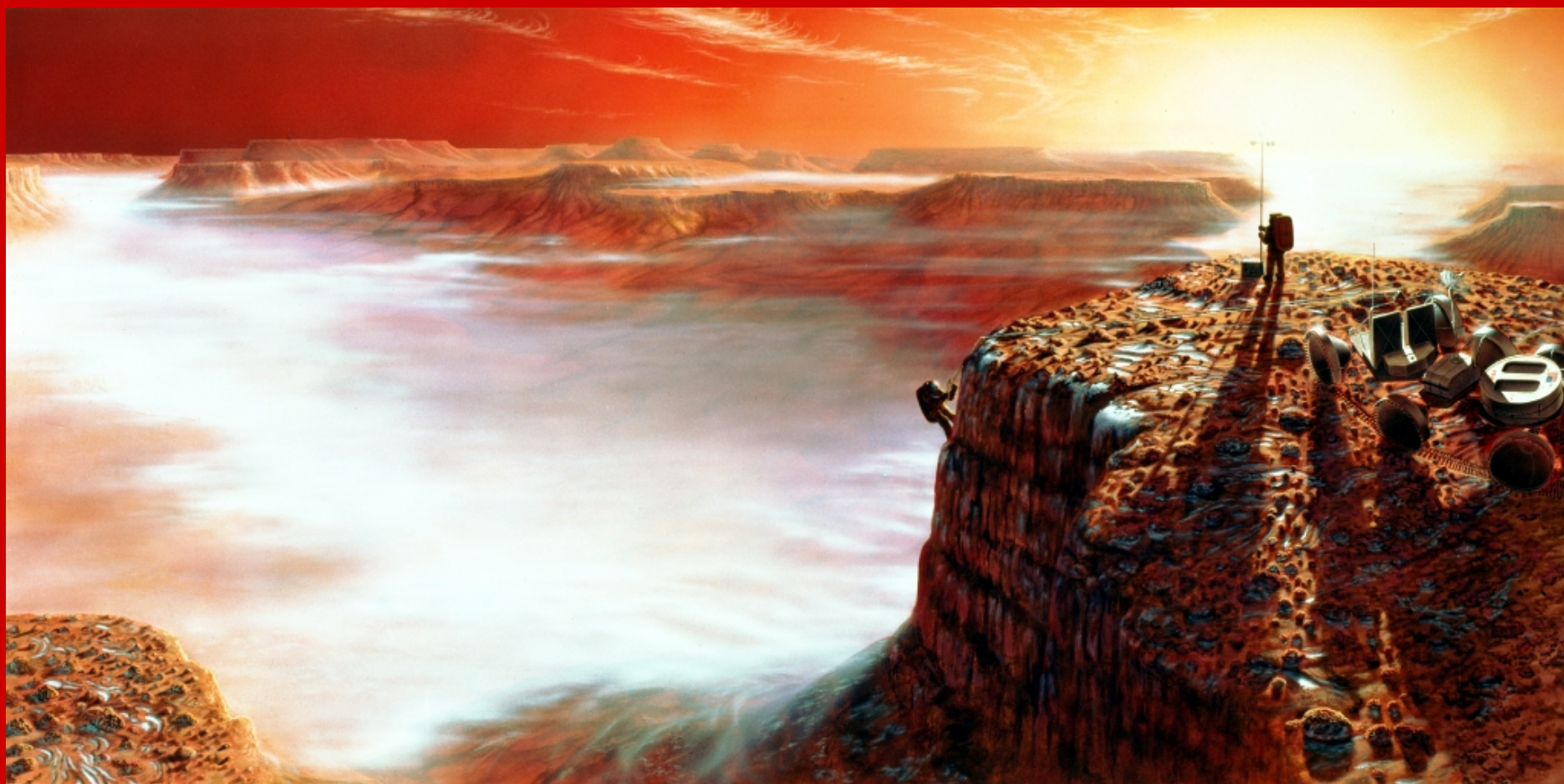




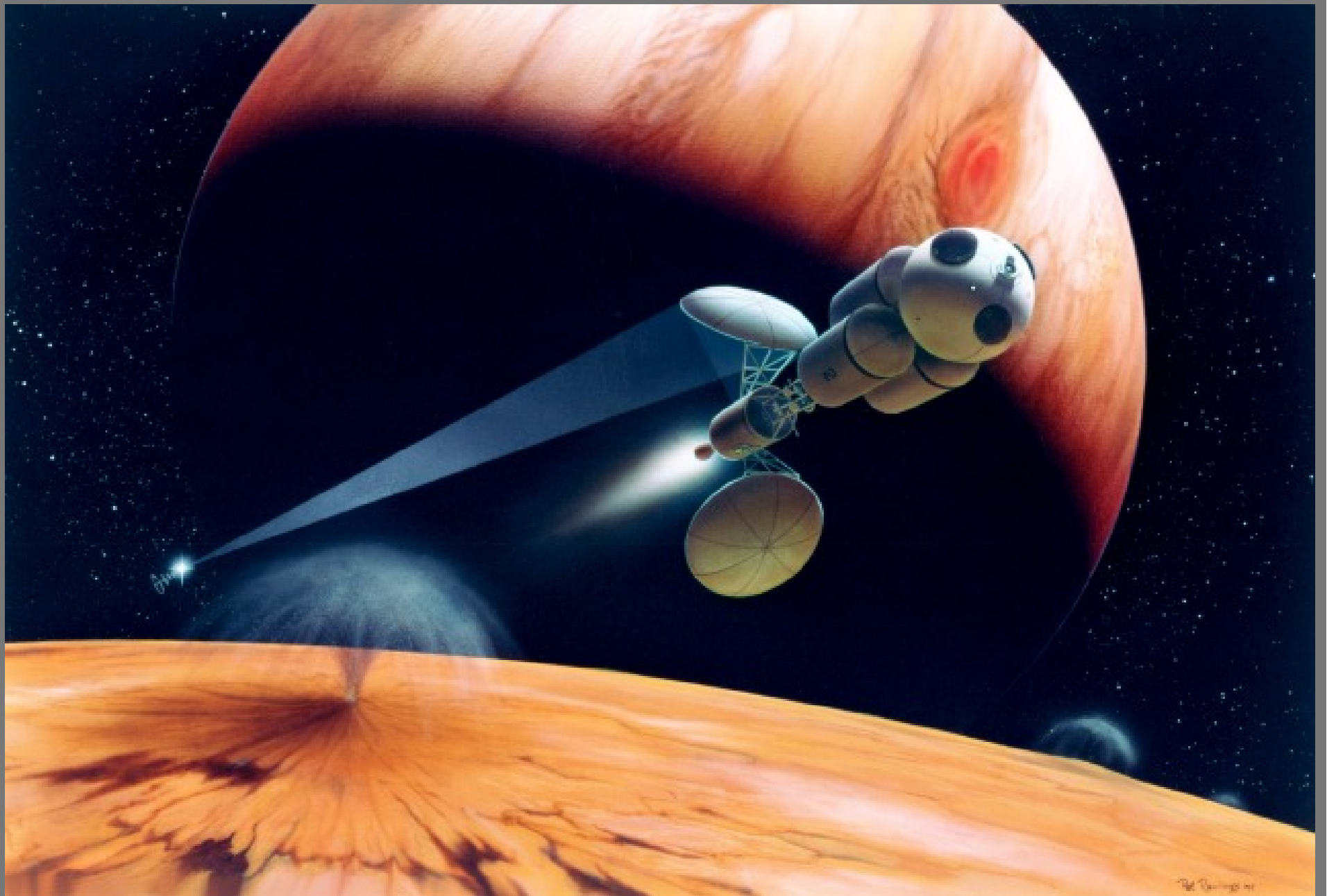


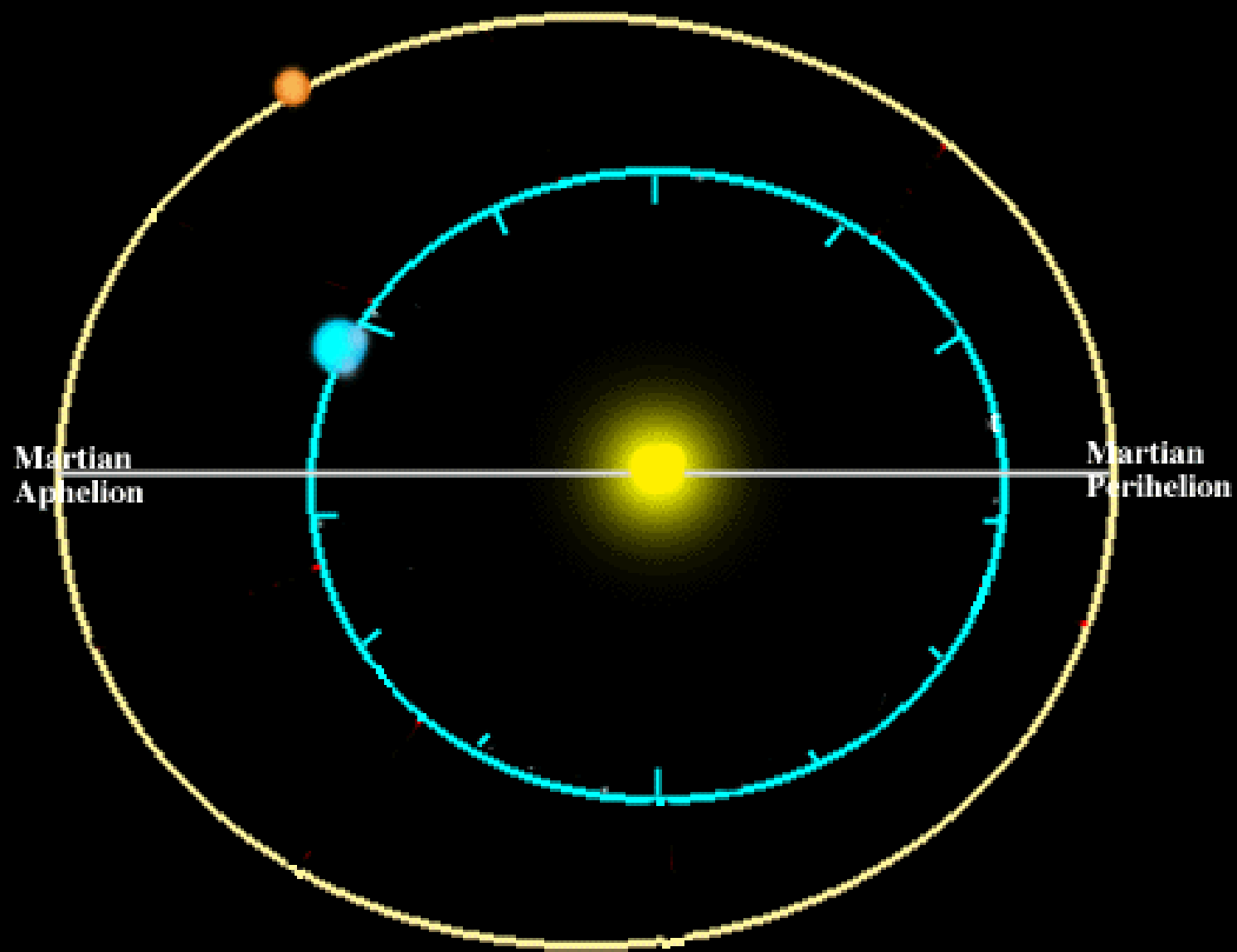








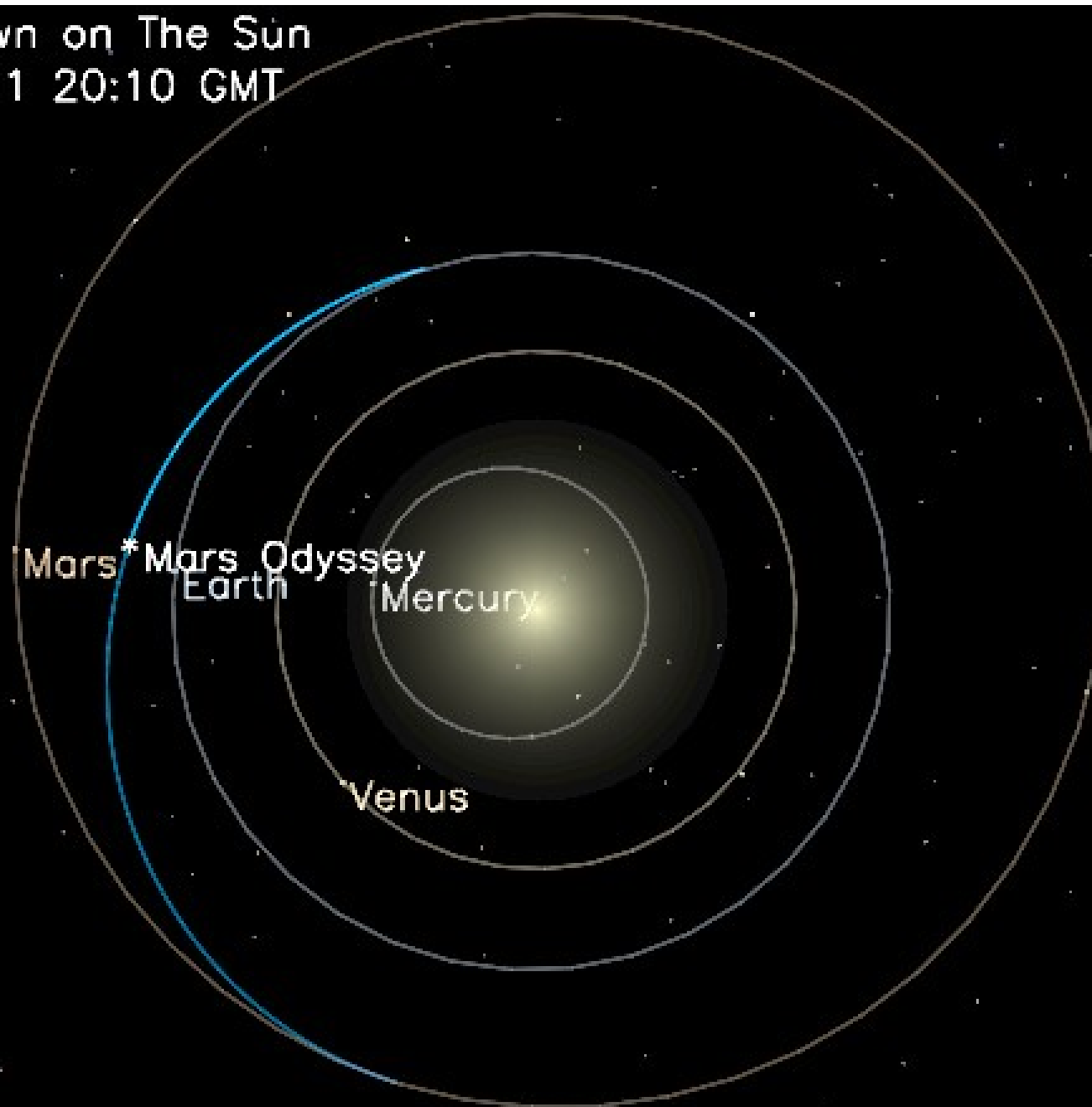




Comparisons of Mars and Earth orbits

Looking down on The Sun
14 Jun 2001 20:10 GMT

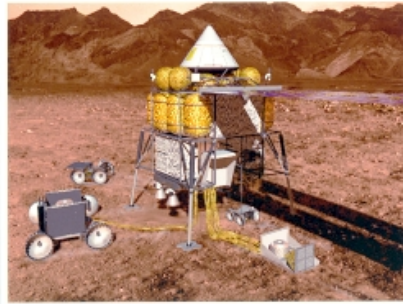
DSeal



Solar System Simulator



1 Ascent Vehicle and Cargo Arrival



2 Ascent Propellant Production



3 Arrival of Surface Habitat



4 Backup Ascent Vehicle and Exploration Systems



5 Crew Positions Habitation System



6 Outpost Overview



7 Crew Departs Mars



8 Rendezvous with Earth Return Vehicle



Mars Mission Storyboard

An Exploration Mission Concept





Hubble Deep Field

HST • WFPC2

PRC96-01a • ST ScI OPO • January 15, 1996 • R. Williams (ST ScI), NASA

